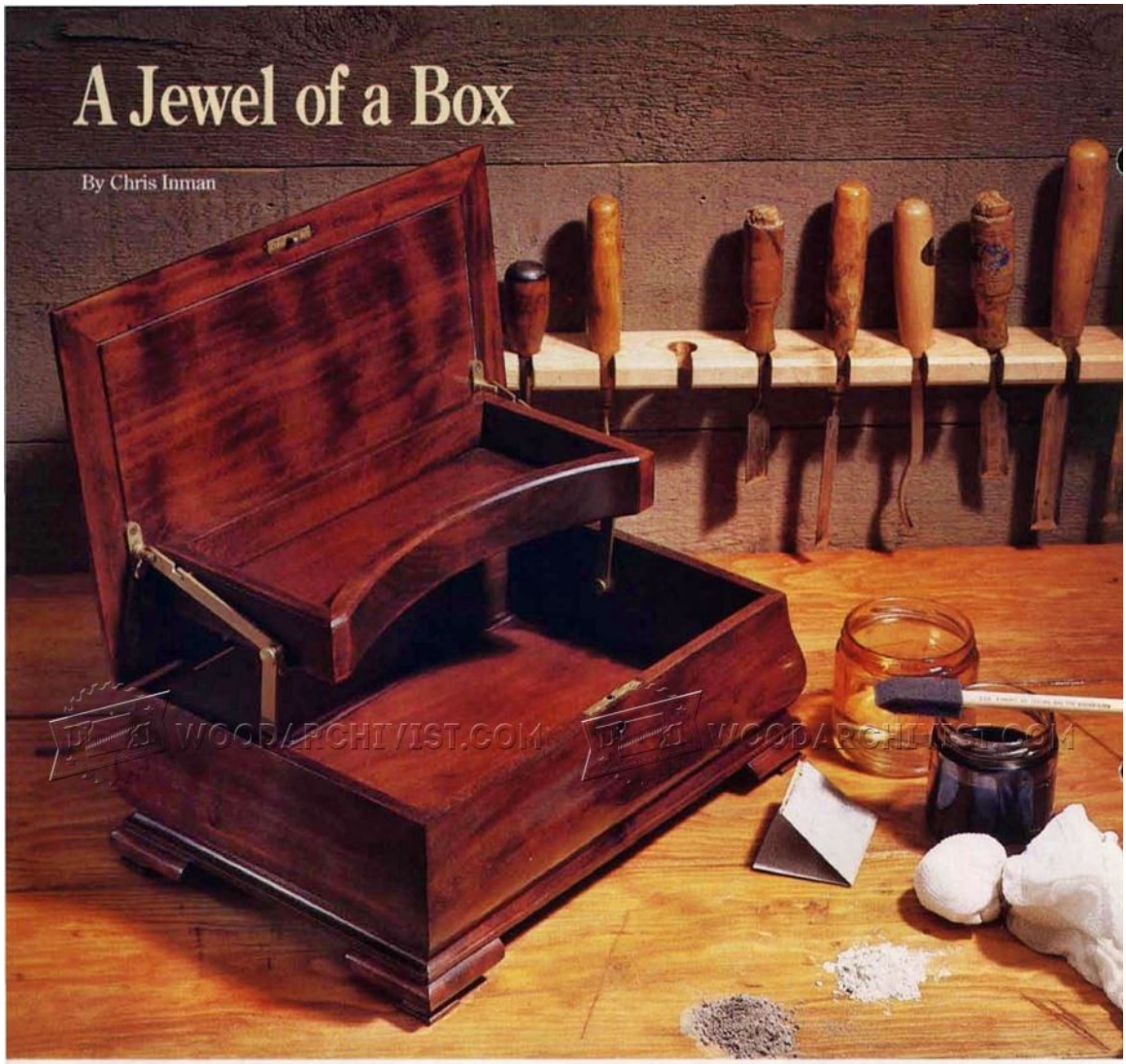
A Jewel of a Box

By Chris Inman



Use an aniline dye stain and then devote a few weeks to mastering an old world finishing technique. The extra time you spend in the shop will pay off with a wonderful new family heirloom.

More than one woodworker has seen this jewelry box and thought it was a century old antique. Although what really brings a look of disbelief is learning that the sides were sculpted with a table saw blade and not with the fancy planes or moulding cutters that they expected. In fact, since the shaping involves a basic table saw setup, this project naturally lends itself to a small production run. Shape as many feet of stock as you need for building several jewelry boxes, or make stock to have on hand later when you need to build a gift for a special occasion.

In addition to the shaped details, credit for looking like an antique has to be shared with the outstanding finish. Red mahogany aniline dye stain gives the cherry an old world appearance, and hand rubbing the varnish topcoats with pumice and rottenstone adds great depth ad clarity. You may not hear much about rubbing out a finish today, but it was commonplace during the golden age of American furnituremaking in the 1700's — the era that inspired the design of this jewelry box project.

Start by Shaping the Sides

If you've ever made cove moulding on your table saw, you're already familiar with the method used for shaping the jewelry box front, back and side walls (pieces 1 and 2). For this project, however, after shaping the cove,

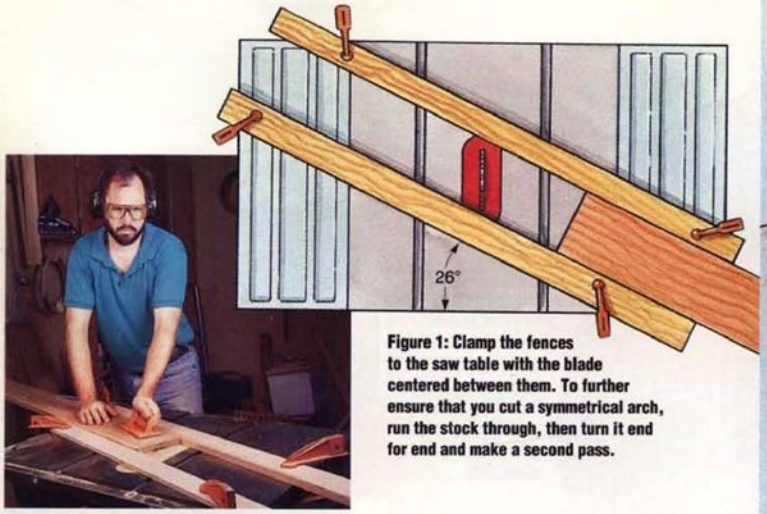


Figure 1: Clamp the fences to the saw table with the blade centered between them. To further ensure that you cut a symmetrical arch, run the stock through, then turn it end for end and make a second pass.

the moulding is ripped in half to create the wall stock. Begin by cutting a 6¼" x 30" piece of cherry, then clamp two auxiliary fences to your table saw as shown above in **Figure 1**. (Remember, shaping longer lengths of stock will provide material for additional boxes.) The 26° angle between the fences and the front edge of the table saw determines the shape of the arch. Setting the fences at a different angle will result in an arch that's more egg shaped or circular. You can experiment with this set-up to produce a variety of effects.

Once you've clamped the fences into position, adjust the blade so it projects about 1/16" —cuts deeper than 1/16" could bog down the saw or damage the blade. Pass the stock over the blade, then turn it end for end and make a second pass. Following this double cutting practice will guarantee that the arch is centered on the board. Continue raising the blade 1/16" at a time until it's 3/8" high, then compare your profile with the **full size pattern** shown on the insert between pages 12 and 13.

Now remove the auxiliary fences from the saw and tilt the blade 45° so you can trim the edges of the board close to the profile shown on the full size pattern. This will remove some of the waste before you complete the edge shaping with a hand plane and refine the cove with a gooseneck scraper, a random orbit sander and a palm sander **(See Figure 2)**. Keep the surface as even as possible, for any dips could show as blemishes at the mitered corners of the assembled box.

Sand the stock through the 120 grit stage, then rip it exactly in half. Next, test your saw's mitering set-up to make sure you get perfect 45° cuts that are square to the edge, then miter the front, back and side walls to length.

Reinforcing the miters with splines will greatly strengthen the structure of the box. To cut the spline grooves in the miters, first make the jig shown in **Figure 3** on page 10. Next, chuck a 1/8" straight bit in your router table, raise the bit 1/4" and rout a 1½" long groove in the lower, fat part of each miter, as shown in the **back wall detail** on the next page. Be sure to alternate your approach to the bit, entering from the left for grooving the miter at one end of each piece of stock, and entering from the right for grooving the other end. Once you've finished routing the grooves, cut splines (pieces 3) to fit, making sure the grain runs across the width (otherwise they'll probably split).

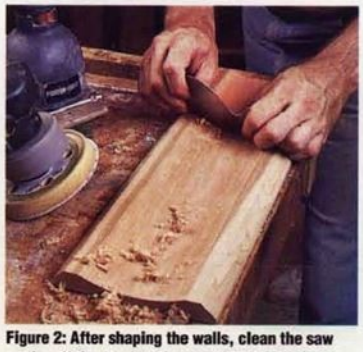
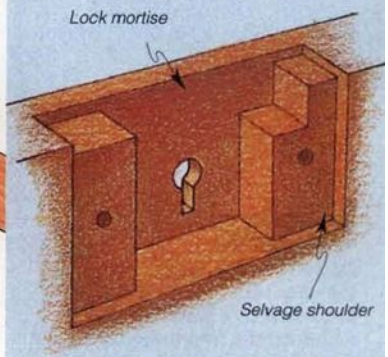


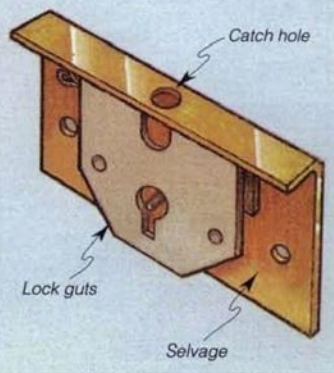
Figure 2: After shaping the walls, clean the saw marks off the stock with a gooseneck scraper, then smooth it with a random orbit or palm sander.

Fitting the Lock



Forming the mortises for the jewelry box lock is best done before assembling the walls. Layout the lock position on the front wall, making sure to include its outside perimeter as well as the inside mortise for the lock guts. Next, use a Forstner bit to drill out as much of the waste in the mortise as you can, limiting its depth to 1/4". Clean up and refine the shape of the mortise with a sharp chisel and relieve the selvage shoulder to a depth of about 3/32".

Finesse the lock into position using a chisel for any fine tuning, then drill pilot holes for the mounting screws. Layout the keyhole location inside the mortise and drill the smallest pilot hole you can at its center. Now enlarge the pilot hole with a 1/8" bit, drilling from the outside face of the wall. This method will practically eliminate any chance of tearout on the front of the wall. Wrap up the lock installation by shaping the keyhole's tail with a very slim file, chisel or coping saw blade.



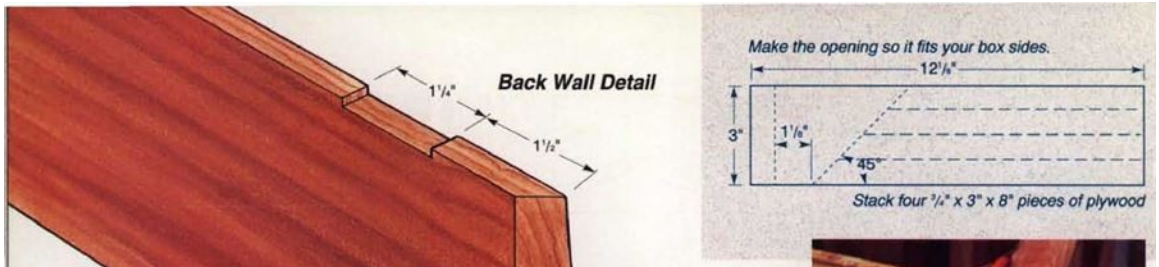


Figure 3: Build the jig shown above to hold your wall stock at a 45° angle while routing the 1/4" deep spline grooves in the miters. Be sure to rout the grooves in the fat part of the stock only.

Hardware Considerations

Before putting the box together take care of several preliminary hardware installation details. Begin by laying out the half mortise for the lock (piece 4) on the inside surface of the front wall, as described in **Fitting the Lock** on the previous page. Taking the time to fit your hardware properly will make a big difference in the final look of your jewelry box.

Next, layout the hinge mortises on the back wall and use a chisel to clean out the waste (see **back wall detail** above). When the hinges (pieces 5) fit just right, drill pilot holes for the screws, then layout and drill the pilot holes in the sides for the tray support pins (pieces 6), as described on page 5 in *Hardware Hints*.

Once you've laid the groundwork for the hardware spread glue on the miters and in the spline grooves, then add the splines and pull the box together with band clamps. Be sure to check the assembly for squareness by measuring the inside diagonals.

Constructing the Lid and Bottom

While the glue in the box assembly dries, begin making the lid and bottom assemblies. Once again, this a perfect opportunity for machining continuous lengths of stock if you plan on building more than one jewelry box.

Cut long strips of cherry for the frames, then form the 1/8" wide by 1/4" deep grooves for the panel joints by making a pass with your table saw blade, as shown in the **frame details** below. Miter the frame pieces to length (pieces 7 through 10), then cut stock to size for the panels (pieces 11 and 12). Form a tongue on all four edges of each panel (see frame details) with a 1/4" dado blade and check their fit in the frames. The final machining step on the panels and frame pieces is routing a very slight chamfer on the edges using a V-groove bit and your router table (see the frame details below).

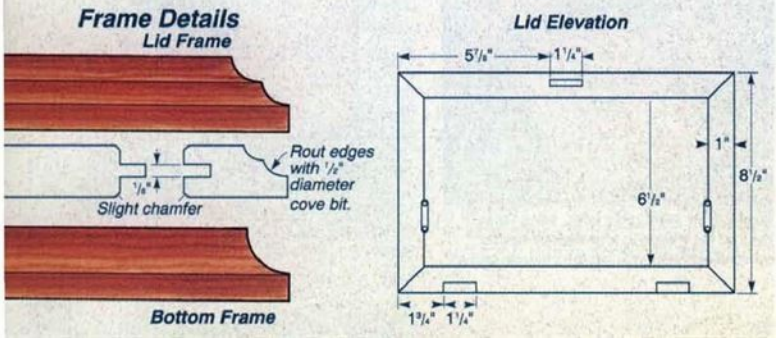
Now carefully apply a coat of oil finish to the panel tongues and in the frame grooves. The oil will prevent small amounts of glue from binding the panels to the frames, which could eventually cause the panels to split. Next, spread glue on the frame miters and clamp them around the panels. Later, remove the clamps and sand the assemblies smooth, then rout the edges with a cove bit, as shown in the **top and bottom edge details** below. Be sure to avoid routing the back edge of the lid or the hinge screws will come through when you assemble the box.

After the glue dries, remove the clamps from the box and set it on the bottom assembly. If any rocking occurs, plane the bottom edges of the box by hand until you get a seamless fit, then clamp the two assemblies together and drill countersunk pilot holes for the hold down screws (pieces 13). One screw in each edge will do (see the **exploded view** at right). Now remove the clamps, spread glue on the edges and screw the bottom to the box.

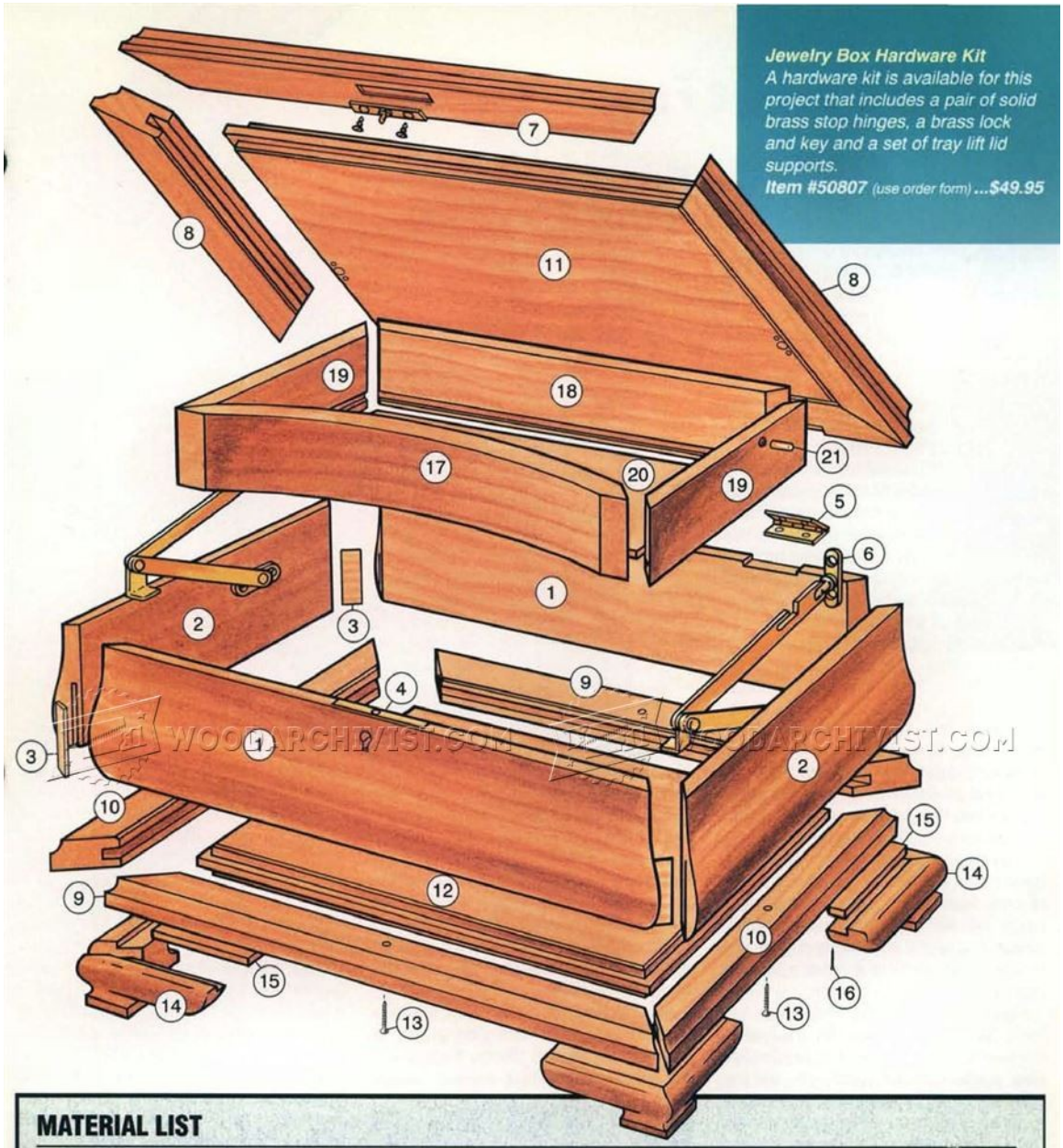
Fit the lid on the box the same way you did the bottom, and transfer the hinge mortise locations from the back wall to the lid (see the **lid elevation** at left). Clean out the mortises with a chisel, then drill pilot holes for the hinge screws and the tray support hardware (see *Hardware Hints* on page 5). You'll need to shorten six of the brass screws supplied with the hinges since they're too long for driving into the 1/2" thick lid. One good method is to grind off the screw tips with your belt sander. Install the hinges and screw the lock into the box, then layout the lock catch position on the lid and clean out the mortise with a chisel.

Adding the Feet and Making the Tray

The process for shaping the feet (pieces 14) is similar to shaping the walls, except this time you'll be using a router table and a 1/4" diameter



Jewelry Box Hardware Kit
A hardware kit is available for this project that includes a pair of solid brass stop hinges, a brass lock and key and a set of tray lift lid supports.
Item #50807 *(use order form)* ***...$49.95***



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MATERIAL LIST

	T x W x L
1 Front and Back (2)	3/4" x 3" x 13"
2 Sides (2)	3/4" x 3" x 9"
3 Splines (4)	1/8" x 1/2" x 1½"
4 Lock (1)	1/4" x 11/16" x 1¾" brass
5 Hinges (1 pair)	1/2" x 1¼" brass
6 Tray Supports (1 pair)	Solid brass
7 Top Frame Sides (2)	1/2" x 1" x 12⅞"
8 Top Frame Ends (2)	1/2" x 1" x 8½"
9 Bottom Frame Sides (2)	1/2" x 1" x 12¾"
10 Bottom Frame Ends (2)	1/2" x 1" x 8⅝"
11 Top Panel (1)	1/2" x 6⁵⁄₁₆" x 11⅜"
12 Bottom Panel (1)	1/2" x 7⅛" x 11¼"
13 Hold Down Screws (4)	#6-1"
14 Feet (8)	3/4" x 7/8" x 2⅜"
15 Gussets (4)	1/4" x 2⅜" x 2⅜" (plywood)
16 Brads (8)	#17 wire gauge-1/2" long
17 Tray Front (1)	1¾" x 1½" x 10⅝"
18 Tray Back (1)	1/2" x 1½" x 10⅝"
19 Tray Sides (2)	1/2" x 1½" x 5⁵⁄₁₆"
20 Tray Bottom (1)	1/4" x 4⅝" x 10⅛" (plywood)
21 Pins (2)	5/32" x 1/2"

Shaping the Feet

A router table is ideal for shaping stock for the feet. By passing a long strip over different router bits and a table saw blade, you can produce a moulding profile like the one shown in the **full size pattern** —a little sanding should be all that's needed to complete the shape.

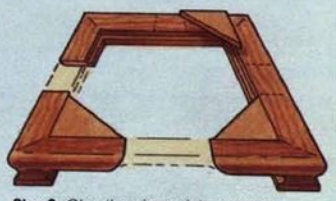
The key to making the feet is to first glue short segments of the stock into a square. Miter four 6" pieces to length and bandsaw the front profiles so you have a pair of feet on each one. Glue the pieces into a square and reinforce the corners with the gussets. After the glue dries, cut the square into four corners.

Step 1: *Rip your stock and rout one edge with a 1/4" roundover bit.*

Step 2: *Shape the inside curve with a 1/4" diameter core box bit.*

Steps 3 & 4: *Rout the 1/4" x 1/4" rabbet with a 1/4" straight bit and nip 1/8" off the toe with your table saw. Shape the inside corner of the roundover with sandpaper.*

Step 5: *Cut four 6" lengths of moulding and layout the front profiles for each pair of feet. Drill starter holes and bandsaw the pieces to shape, leaving a connecting bridge in the center. Miter the end of each foot.*



Step 6: *Glue the pieces into a square (holding them with a band clamp) and glue the gussets into the corners. Later, cut the assembly into four corner sections and complete the shaping.*

core box bit. Follow the steps in **Shaping the Feet** above, then assemble them into a frame with the plywood gussets (pieces 15). After separating the feet corners, glue and nail (pieces 16) them to the box.

Curving the tray front provides extra hand room for reaching into the jewelry box. Making this piece would ordinarily call for a bent lamination technique, but since so little stress is put on the front, cutting it from a thicker piece of wood works just fine.

Rip cherry for the tray front, sides and back (pieces 17, 18 and 19), and miter the pieces to length. Next, trace the **full size pattern** of the front onto the top edge of the front stock and bandsaw it to shape. Cut grooves in the sides and back for the tray bottom by making two passes over your table saw blade, sizing the grooves for a good fit with your 1/4" plywood. To form the groove in the tray front, make two passes with a 1/8" slot cutting bit (be sure the bearing limits the depth of cut to 1/4"). Cut the bottom (piece 20) to shape, following the **full size pattern**, then spread glue on the miters and put a few drops in each bottom groove. Band clamp the tray together, then later, sand the joints smooth and drill pilot holes in each side wall for the tray hardware pins (pieces 21), as described in *Hardware Hints*.

Finishing

For an aged appearance, color the cherry jewelry box with red mahogany water soluble aniline dye stain (available from The Woodworkers' Store). Mix the stain full strength and apply it with a foam brush **(See Figure 4)**. Allow the stain to soak in for several minutes, then wipe off the excess with a rag. If the dye stain darkens more than you want, wipe the project with a damp rag to remove some of the color.

After drying for a day, sand the project lightly with 400 grit paper to remove any raised fibers, then brush on a coat of sanding sealer. Follow with three coats of high gloss varnish, allowing at least five days drying time for each of the first two coats and about three weeks for the third coat before rubbing out the finish. Sand between coats with 400 grit silicon carbide stearated sandpaper, which will not clog like standard paper.

Figure 4: Using a sponge brush, apply the aniline dye stain liberally, and wipe off the excess after allowing it to soak in for several minutes.

To rub out the varnish, begin by dipping a piece of 600 grit silicon carbide paper in mineral spirits and lightly sanding the project. Be conservative, because it's easy to sand right through the finish, especially at the corners. Next, ball up some cheesecloth, rewet the surface with mineral spirits and sprinkle on a bit of pumice. Rub the box gently with the cloth in a circular motion until you get an even level of glossiness and have completely removed any bumps or runs. Repeat this process with rottenstone to get a beautiful satin finish.

Once you've rubbed out the varnish, wipe the jewelry box with a clean piece of cheesecloth and install the hinges, the lock and the lid support hardware. Sign and date the bottom of the box to remind others of this heirloom's origins, and don't be surprised if it's the only way you can convince your friends that this is not an antique. At least not yet. ■